

## **REMARKS**

Claims 1-7, 9, 11, 12, 14-23, 25-27 and 29 are now pending in the application. Claims 1-7, 9, 11, 12, 14-23, 25-27 and 29 stand rejected. Claims 8, 10, 13, 24 and 28 were previously cancelled; and Claims 1-3, 5, 9, 11, 12, 14, 16, 19-23 and 29 have been amended herein. Support for the amendments can be found throughout the application, drawings and claims. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

## **APPLICANTS INTERVIEW SUMMARY**

Applicants thank the Examiner for speaking with the undersigned on February 20, 2007. In the interview, the prior art was discussed along with the objections to the claims. Applicants argued that Pavlidis does not teach a spectral reflection of ambient light. The Examiner stated that he would re-evaluate the teachings of the Pavlidis reference, and perform a secondary search if necessary, upon the receipt of Applicants' responsive amendment.

## **REJECTION UNDER 35 U.S.C. § 112**

Claims 1-7, 9, and 11-12, 14-23, 25-27, and 29 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed.

With regard to Claims 1-7, 9 and 11, Applicants note support for this claimed feature can be found in at least paragraphs [0038], [0041], [0043] and [0048] of the originally filed specification. Regarding Claims 12 and 14-22, Applicants note that

support for this claimed feature can be found in at least paragraphs [0041], [0043], [0054] and [0055] of the originally filed specification. With regard to Claims 23, and 25-27, Applicants note that support for this claimed feature can be found at least in paragraphs [0057], [0058] and [0059] of the originally filed specification. Support for the claimed feature of Claim 29 can be found in at least [0054], [0055], [0058], and [0059] of the originally filed specification. Thus, since support for Claims 1-7, 9, 11, 12, 14-23, 25-27 and 29 can be found in Applicants' specification as originally filed, Applicants respectfully assert no new matter has been added via the amendments to Claims 1, 12 and 23. Applicants respectfully request the Office reconsider and withdraw the rejection of Claims 1-7, 9, 11, 12, 14-23, 25-27 and 29 under 35 U.S.C. § 112.

#### **REJECTION UNDER 35 U.S.C. § 102**

Claims 1, 2, 4, 6-7, 12, 15, 17-19 and 21 are rejected under 35 § 102(b) as being anticipated by Pavlidis (U.S. 6,854,879; hereinafter "Pavlidis"). This rejection is respectfully traversed.

Initially, Applicants note Pavlidis teaches the use of human skin **emissions** to determine whether a person is lying. At best, Pavlidis appears to disclose a system for polygraph testing that converts a thermal facial image of an individual 30 into a visualization of blood flow rate in the person's face to determine during the polygraph testing if the person is lying (see at least Column 5, Lines 51-65 and Column 6, Lines 36-45). The system of Pavlidis is based purely on thermal energy that is **emitted** from the person and not a **spectral reflection of ambient light** from the person. In contrast, independent Claim 1 has been amended to recite:

...a camera that produces of a portion of the subject, the image comprised at least in part from either **a first spectral reflection of ambient light from skin** of the subject when the subject is not experiencing stress, or a **second spectral reflection of ambient light** when the subject is experiencing stress, the second spectral reflection of light results from **increased sub-dermal blood flow and increased dermal hydration of the subject...**(emphasis added).

Independent Claim 12 has been amended to recite:

...observing an image of the subject, the image of the subject being comprised of a **first spectral reflection of ambient light** when the subject is not experiencing stress, and a **second spectral reflection of ambient light** when the subject is stressed, the second spectral reflection caused by an **increase in sub-dermal blood flow and an increase in dermal hydration** of the subject that indicates a skin blush of the subject...(emphasis added).

Applicants respectfully assert that Pavlidis does not teach, suggest or disclose each and every element of Claims 1, and 12 as claimed. In this regard, Pavlidis does not teach or disclose whatsoever determining stress based on spectral reflections of **ambient light** that is reflected from the skin of the subject, or spectral reflections of ambient light that comprise an increase in sub-dermal blood flow and dermal hydration as claimed. Rather, Pavlidis discloses at best measuring infrared light in the form of **heat that is emitted** from the skin of the subject. The system of Pavlidis is based purely on thermal energy. Pavlidis does not teach or disclose whatsoever determining physiological stress based on spectral reflections of ambient light, as claimed herein; and it would be improper to modify Pavlidis to arrive at Applicants' claims herein, as there is no suggestion in Pavlidis to measure spectrum reflections of ambient light. In addition, Pavlidis teaches away from Applicants' claimed subject matter, as Pavlidis

teaches a cooling of the cheeks in response to stimulus, and measuring the blood flow from the cheeks to the periorbital region 34 around the eyes 35 to determine if the individual 30 is anxious (see at least Column 5, lines 52-65). Thus, Pavlidis does not disclose whatsoever measuring a blush that is characterized by increased blood flow to the cheeks.

Accordingly, in view of the above discussion, Applicants respectfully assert that Pavlidis does not teach, suggest or disclose each and every element of Claims 1 and 12, and as such, Applicants respectfully request the Office to reconsider and withdraw the rejection of Claims 1 and 12 under 35 U.S.C. § 102(b).

With regard to Claims 2, 4, 6, 7, 15, 17-19 and 21, Applicants note these claims depend directly or indirectly from either independent Claims 1 or 12, and thus, should be in condition for allowance for the reasons set forth for Claims 1 and 12 above. Accordingly, Applicants respectfully requests the Office reconsider and withdraw the rejections of Claims 2, 4, 6, 7, 15, 17-19 and 21 under 35 U.S.C. § 102(b).

#### **REJECTION UNDER 35 U.S.C. § 103**

Claims 3, 9, 11, 14, 20, 22-23, 25 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pavlidis in view of Elli Angelopoulou (*The Reflectance Spectrum of Human Skin*; hereinafter “Angelopoulou”). This rejection is respectfully traversed.

With regard to Claims 3, 9, 11, 14, 20, and 22, Applicants note these claims depend directly or indirectly from either independent Claims 1 or 12 and, thus, should be in condition for allowance for the reasons set forth for Claims 1 and 12 above.

Accordingly, Applicants respectfully requests the Office reconsider and withdraw the rejections of Claims 3, 9, 11, 14, 20, and 22 under 35 U.S.C. § 103(a).

With regard to independent Claim 23, Applicants respectfully refer the Office to the remarks above for a discussion of the Pavlidis reference. Applicants note independent Claim 23 has been amended to recite:

...indicating whether the subject is experiencing physiological stress based on an **attenuation at a pre-selected frequency of a light spectrum reflected from the first and the second areas of skin**, as captured by said image, the attenuation representative of a change in a reflected spectrum that indicates an **increase in a sub-dermal blood flow and dermal hydration**, and the attenuation indicating a blush (emphasis added).

As discussed, Applicants respectfully assert that none of the cited art, either Pavlidis or Angelopoulou, teach, suggest or disclose each and every element of Claim 23. In this regard, Pavlidis does not teach, suggest or disclose whatsoever determining stress based on spectral reflections of **ambient light** that is reflected from the skin of the subject, or spectral reflections of ambient light that comprise an increase in **sub-dermal blood flow and dermal hydration** as claimed. With regard to Angelopoulou, Applicants respectfully submit that it is improper to modify Pavlidis with Angelopoulou as Angelopoulou expressly deals with human skin **reflections** and not human skin **emissions**. Thus, these two references take basically opposite approaches to detecting stress in an individual. There is further nothing in either of these references that would suggest or motivate one skilled in the art to combine the teachings of each in the manner done by the Office.

Accordingly, in view of the above discussion, Applicants respectfully assert that the cited art does not teach, suggest or disclose each and every element of Claim 23, and as such, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claim 23 under 35 U.S.C. § 103(a).

With regard to Claims 25 and 27, Applicants note these claims depend directly or indirectly from either independent Claim 23 and, thus, should be in condition for allowance for the reasons set forth for Claim 23 above. Accordingly, Applicants respectfully requests the Office reconsider and withdraw the rejections of Claims 25 and 27 under 35 U.S.C. § 103(a).

Claims 5 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pavlidis in view of Kataoka (*Development of a Skin Temperature Measuring System for Non-contact Stress Evaluation*; hereinafter "Kataoka"). This rejection is respectfully traversed.

Applicants note Claims 5 and 16 depend directly from either independent Claim 1 or 12, and thus, should be in condition for allowance for the reasons set forth for Claims 1 and 12 above. Accordingly, Applicants respectfully requests the Examiner reconsider and withdraw the rejection of Claims 5 and 16 under 35 U.S.C. § 103(a).


## **CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is

believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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